



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

DATE: JAN 28 2016

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Allied Metal Company, Chicago, Illinois

FROM: Sara Loiacono, Environmental Scientist
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Allied Metal Company

Facility Location: 4528 West Division Street, Chicago, Illinois, 60651

Date of Inspection: December 21, 2015

Lead Inspector: Sara Loiacono, Environmental Scientist

Other Attendees:

1. Natalie Topinka, Environmental Scientist, US EPA
2. Gilbert Escudero, Maintenance Superintendent, Allied Metal Company
3. Jim Kallas, Ridgewood Environmental

Purpose of Inspection: Respond to citizen complaint of "white smoke" and determine general facility compliance.

Facility Type: Secondary Aluminum Production

Regulations Central to Inspection: The facility is subject to 40 C.F.R. Part 63, Subpart RRR.

Arrival Time: 8:45 AM

Departure Time: 10:30 AM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Gilbert Escudero, Maintenance Supervisor, unless otherwise noted.

Process Description:

Allied Metal Company casts aluminum and zinc ingots and sows; however, the Chicago facility only processes aluminum. At the Chicago location, aluminum scrap is purchased in bulk and stored at the facility. Scrap is supplied from multiple sources, but a large portion of the scrap is obtained from Alcoa. Scrap is melted in a natural-gas-fired reverberatory furnace (with the addition of a flux to remove magnesium [*Mr. Escudero referred to the flux as "tetrafluoride"*]) and then cast into 25-30 lb ingots or 12,000 lb sows. On occasion, liquid metal is poured into transfer ladles and sold in molten form. Overall, Mr. Escudero estimates that approximately 80% of Allied's sales are from ingots and approximately 20% from sows and ladles. Allied's production facility operates 24 hours per day, seven days per week. Three furnaces are present in the facility; only two run at any given time and the remaining furnace serves as a backup. Exhaust from the aluminum melting portions of the furnace is captured in a hood and then routed to an eight-compartment baghouse for treatment prior to release to the atmosphere. Combustion exhaust is vented directly to the atmosphere.

Staff Interview: When we spoke with Mr. Escudero during our opening conference, he said that a city inspector came out recently in response to a citizen call of "white smoke." Mr. Escudero speculated that the citizen may have observed large quantities of steam from the facility's ingot quenching operations, which is directed to a stack on the roof. Regarding particulate matter control, according to Mr. Escudero, baghouse alarms are triggered when the baghouse leak detection system "dust" readings go above 20 [*according to Earl Parker with Auburn Systems (the manufacturer of the triboelectric dust monitor used by the Chicago Allied Metal facility) the dust readings indicate relative particulate matter loadings based on the number of dust particles impacting the probe compared to a baseline*]. Mr. Escudero also mentioned that condensation can cause false-positive readings that trigger the baghouse alarms and that the last alarm event on October 12, 2015 resulted from condensation issues. According to other facility staff, bag integrity tests are performed monthly, and the dust probe was last cleaned sometime during the first week of November. No building-wide pressure monitoring is conducted at the facility.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

Furnaces #2 and #4 were operating and the facility was casting ingots during our tour. We observed the ingot-casting process, including melting of aluminum in reverberatory furnaces, circulation of molten aluminum in side wells, pouring and casting of ingots, and stacking of cast ingots onto pallets for packaging and transport. We observed that the furnace side wells (charge wells and pump wells) were located in close proximity to a large overhead door, which was open during our tour.. Furnace #3 was not operational at the time of our inspection, and the roof of the furnace was cracked and sagging. Sow casting was not taking place during our inspection; however, we observed the sow pouring area and noticed that the exterior of the air ducts above this area were visibly dirty and coated with particulate. We also observed the furnace and baghouse controls. Baghouse data loggers record relative dust measurements (using a triboelectric detector), baghouse temperature, and dryer temperature on 15-minute intervals. *[According to follow-up email exchanges with Mr. Kallas, Mr. Escudero said that the dryer temperature is a relic of the previous thermal chip dryer system. The dryer system and all connections to the display system were removed, but the dryer temperature readout could not be removed from the display without installing a new program. Therefore, the readout always shows the dryer temperature as 96°F although no thermocouples or wires are connected to the display system.]* We noted that all daily dust readings for the date of inspection were zero. Mr. Escudero added dust to the exhaust line to demonstrate that the dust probe was functioning; however, the dust reading remained at zero. Mr. Escudero attributed this to the dust being caught in condensation *[the weather was rainy at the time]* and never making it to the probe for detection.

Field Measurements: were not taken during this inspection.


CLOSING CONFERENCE**Requested documents:**

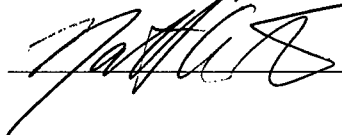
We requested the following documents, which were provided by Mr. Kallas shortly after our inspection via e-mail.

- OM&M Plan
- Date(s) and time(s) of ingot casting during the week of November 23rd
- Clarification on the unit of measurement for “dust” in the bag leak detection system

Concerns: EPA mentioned concern with proximity of furnace and side wells to the open overhead door and potential effects on capture efficiency of hoods.

SIGNATURES

Lead Inspector:  Date: 1/22/16

Section Chief:  Date: 1/26/16

APPENDICES AND ATTACHMENTS

- Inspection photos, documented in Appendix A, attached as external storage media and also maintained at:
C:\Users\sloiacon\Documents\Allied Metal\21Dec15 Inspection\Inspection Photos
- Attached supplemental information was requested on the inspection and provided shortly afterward by Mr. Kallas via e-mail.

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APPENDIX A: FIELD NOTES AND FIELD MEASUREMENT DATA

Photograph Log:

- PC210001.JPG – ingot storage
- PC210002.JPG – sow storage
- PC210003.JPG – ingot and sow packaging and storage
- PC210004.JPG – “tetrafluoride” flux
- PC210005.JPG – aluminum scrap
- PC210006.JPG – aluminum scrap
- PC210007.JPG – end of ingot production line
- PC210008.JPG – outside scrap storage
- PC210009.JPG – outside scrap storage
- PC210010.JPG – combustion chamber and hood; ventilation over ingot casting area
- PC210011.JPG – Furnace #3
- PC210012.JPG – furnace slag
- PC210013.JPG – sow casting area
- PC210014.JPG – sow casting area
- PC210015.JPG – ventilation above sow casting area
- PC210016.JPG – Furnace #3
- PC210017.JPG – exhaust pipe above Furnace #3
- PC210018.JPG – Furnace #3
- PC210019.JPG – exhaust pipe above Furnace #3
- PC210020.JPG – Furnace #3
- PC210021.JPG – ventilation to cool bottom of Furnace #3
- PC210022.JPG – Furnace #4 controls
- PC210023.JPG – Furnace #4 controls
- PC210024.JPG – Furnace #4 controls
- PC210025.JPG – ingot casting – liquid aluminum in molds
- PC210026.JPG – Furnace #4 charge well
- PC210027.JPG – Furnace #2 pump well and circulation pump
- PC210028.JPG – Furnace #2 controls
- PC210029.JPG – Furnace #4 charge well location relative to exterior overhead door
- PC210030.JPG – transfer ladles
- PC210031.JPG – roof fan (not operating at time of inspection)
- PC210032.JPG – exhaust pipes to baghouse
- PC210033.JPG – baghouse
- PC210034.JPG – exhaust pipes, baghouse, and stack
- PC210035.JPG – baghouse differential pressure gauge
- PC210036.JPG – baghouse controls
- PC210037.JPG – baghouse data
- PC210038.JPG – location of dust probe (green probe) in ventilation system
- PC210039.JPG – baghouse hoppers

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- PC210040.JPG – Furnace #2 location relative to overhead door; furnace hearth on image-left and charge well on image-right